

REMARKS

In reply to the Office Action of May 21, 2007, Applicant submits the following remarks. Claims 1, 4-6, 9-11, 14, 17 and 29 have been amended. Support for the amendments to claims 1, 9, 17 and 29 can be found at least in the specification as filed at page 1, lines 21-25 and page 4, lines 27-28. Claims 23, 28 and 32 have been canceled. Claims 4-5 and 14 have been amended to maintain proper antecedent basis with a term used in independent claim 1. Claims 4-6 and 10-11 have been amended to remove a colon. Applicant respectfully requests reconsideration in view of the foregoing amendments and these remarks.

Section 102 Rejections

Claims 29 and 31 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent Number 5,103,981 ("Abbott"). The applicant respectfully traverses in light of the amendment to claim 29.

Amended claim 29 requires adding a waste mixture containing shredded plastics and metals from automobiles, electronics or appliances and having an average particle size from 10 mm to 200 mm and metals to an air-leg separator.

Abbott describes a particle separator which separates particles based on their relative densities or weights (Abstract). A contaminated mixture of sand, metal, paint and plastic is first separated into different sizes (col. 3, lines 6-14 and col. 4, lines 10-12). The particles are fed through screens with sizes of 20, 30 and 40 mesh (col. 6, lines 1-50). Particles passing through the 40 mesh screen are discarded. The particles that are separated by size, e.g., larger than 20 mesh, 20-30 mesh and 30-40 mesh, and less than 40 mesh are then some of the particles are fed into a separator mechanism (col. 7, lines 29-31). The separator mechanism then separates the particles by density (col. 6, lines 40-48). The separator mechanism has a five inch pipe with an operating pressure of 14-18 psi, depending on the size of particles in the mechanism, either between 20-30 mesh or between 3-40 mesh (col. 3, lines 40-47).

While Abbott separates plastics from contaminants, the particles that are being separated are on a different scale than being separated in the method of claim 29. A 20 mesh indicates that

there are 20 wires per inch forming the screen used for separating the particles. Thus, Abbott's larger particles are in the range of around 0.05 inches (1.27 mm). Abbott's larger particles are around $1/10^{\text{th}}$ the size of the smallest average size of the particles added to the air-leg separator in applicant's claim 29. For at least this reason, applicant submits that after the amendment to claim 29, Abbott does not anticipate claim 29 or 31.

Applicant respectfully requests withdrawal of the anticipation rejection.

Section 103 Rejection

Claims 30 and 32-33 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Abbott. Claims 1, 4-6, 9-18 and 21-28 were rejected as unpatentable over Abbott and in view of U.S. Patent No. 4,127,476 ("Iannazzi"). The applicant respectfully traverses in light of the amendments to claims 1, 9, 17 and 29.

Claims 30 and 32-33 depend from claim 29 and require all of the limitations of claim 29. Applicant submits that it would not have been obvious to a person of ordinary skill in the art to apply a technique for separating out particles with a size on the order of a grain of sand, somewhere between 0.05 inch and 0.033 inch, to particles that are essentially between about 10 and 300 times that size as required by amended claim 29. There is no indication that Abbott's system, with five inch pipes and 14-18 psi air pressures would be able to accommodate and entrain particles with an average size between 10 and 200 mm. For at least these reasons, applicant submits that there is no pending *prima facie* case of obviousness after the amendment to claim 29.

Iannazzi describes a process and system for shredding waste material to a uniform size, separating the material into products of different density and then further shredding the fractions of material into smaller pieces for further separation (Abstract, col. 4, lines 48-51). The waste material is from office waste and starts with a size of less than 8.5 inches and can be shredded to a size of about 0.25 by 2 inches or 1/2 inch uniform pieces (col. 2, lines 30-36, col. 4, lines 1-6 and lines 60-66). The office waste includes items, such as coffee cups, board, boxes, carbon paper, plastic film, glassine paper and adhesives (col. 1, lines 38-42). A key aspect to the

separation is that the pieces, e.g., of paper, are uniform in size, such as between about 0.25 by 2 inches or 1/2 inch uniform pieces after being shredded.

Amended claim 1 is directed to an arrangement of separators and a grinder, the separators and grinder being configured in the arrangement to produce three or more product streams from a plastic-rich feed mixture, wherein the plastic-rich feed mixture includes plastic and metal from plastic automobiles, appliances or electronics and with an average particle size from 10 mm to 200 mm and the product streams including include a coarse heavy stream, a ground plastic-rich product stream, and at least one ground light material stream. One of the separators is an air-leg separator for separating metal materials from the plastic-rich feed mixture, wherein the air-leg separator is configured to receive the plastic-rich feed mixture and to entrain light materials and allow heavy materials to fall through the air-leg separator. The grinder is in operable communication with the air-leg separator such that at least a portion of a plastic material exiting the separator enters the grinder.

Amended claim 1 requires a grinder after the air-leg separator. As noted above, Abbott separates particles that are the size of sand. There would be no motivation to feed particles the size of sand through a grinder after separation. For at least this reason, applicant submits that one would not add a grinder to the separator mechanism of Abbott. Further, Iannazzi describes separating plastic film, but not plastics from automobiles, electronics or appliances, which are much thicker than plastic film from office waste. Iannazzi also describes being able separate metal foil (col. 5, lines 18-30). However, metal foil is thinner and less damaging to machinery than the metal from automobiles, electronics or appliances. There is no indication that the method and machinery employed by Abbott and Iannazzi could be used or modified for separating plastic and metal from automobiles, electronics or appliances and having an average particle size from 10mm to 200mm. For at least these reasons, applicant submits that no *prima facie* case of obviousness is pending for claim 1 after amendment.

Amended claim 9 requires operating a system to process a plastic-rich feed mixture including plastic and metal from automobiles, appliances or electronics and with an average particle size from 10 mm to 200 mm to produce at least three product streams, wherein operating

the system comprises feeding the plastic-rich feed mixture into an air-leg separator to separate the metal materials from the plastic-rich feed mixture and to form the coarse and/or heavy stream, followed by grinding at least a portion of a plastic material exiting the air-leg separator in a grinder to form a ground material.

For similar reasons as presented above with respect to claim 1, specifically, because a grinding step follows the feeding step and because the plastic-rich feed mixture includes plastic and metal from automobiles, appliances or electronics and with an average particle size from 10 mm to 200 mm, applicant submits that after amendment of claim 9, there is no *prima facie* case of obviousness pending for claim 9.

Amended claim 17 describes a method for processing a mixture, comprising moving air in an air-leg separation device; adding a mixture of plastics and metals to the air-leg separation device, wherein the plastics and metals are from automobiles, appliances or electronics and have an average particle size from 10 mm to 200 mm and the moving air entrains light or thin materials in the mixture and allows heavier or thicker components to fall within the separation device; from the air-leg separation device, collecting the light or thin materials separately from the heavier or thicker components; after collecting the light materials, sending the light or thin materials to a grinder.

For similar reasons as presented above with respect to claim 1, specifically, because light or thin materials collected from an air-leg separation device are sent to a grinder and because the mixture of plastics and metals added to the air-leg separation device are from automobiles, appliances or electronics and with an average particle size from 10 mm to 200 mm, applicant submits that after amendment of claim 17, there is no *prima facie* case of obviousness pending for claim 17.

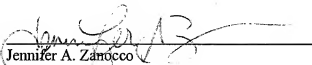
Claims 4-6, 13-16 and 24-27 depend from claim 1. Claims 10-12 depend from claim 9. Claims 18 and 21-23 depend from claim 17. Applicant submits that at least the reasons presented above with respect to the independent claims apply to the dependent claims.

Withdrawal of the obviousness rejections is respectfully requested.

No fee is believed to be due. If, however, there are any charges or credits, please apply them to Deposit Account No. 06-1050.

Respectfully submitted,

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